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Mr. James Saric
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USEPA Region 5
77 West Jackson Boulevard (SR-6J)
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SEDIMENTS

Subject
Response to Comments on Proposed Sampling Plan for Phase 2 Portage Creek Sediment Investigation

Date:
November 10, 2008

Dear Mr. Saric:

On behalf of the Kalamazoo River Study Group (KRSG), attached are responses to United States Environmental Protection Agency (USEPA) comments provided in a letter dated October 15, 2008 and Michigan Department of Environmental Quality (MDEQ) comments provided in a letter dated September 12, 2008 on the Sampling Plan for the Phase 2 Portage Creek Sediment Investigation for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. The revised sampling plan will be submitted under separate cover.

Please contact me with any questions.

Sincerely,

ARCADIS

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Enclosures:

Response to USEPA October 15, 2008 Comments on the August 2008 Proposed Sampling Plan for Phase 2 Portage Creek Sediment Investigation

Response to MDEQ September 12, 2008 Comments on the August 2008 Proposed Sampling Plan for Phase 2 Portage Creek Sediment Investigation

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

RESPONSE TO USEPA OCTOBER 15, 2008 COMMENTS ON THE AUGUST 2008 PROPOSED SAMPLING PLAN FOR PHASE 2 PORTAGE CREEK SEDIMENT INVESTIGATION

GENERAL COMMENTS

USEPA General Comment # 1

The objectives of the sampling plan must be included in the plan. This is necessary to more clearly define the purpose of the sampling plan.

Response:

The work plan text has been revised to include the objective.

USEPA General Comment # 2

The figures referenced from the Technical Memorandum-Data Report should be directly incorporated into this sampling plan. The Data report was an informal submittal and not subject to U.S. EPA formal review, comment and approval. Therefore, reference to the Data Report should not be included in this sampling plan or future sampling plans.

Response:

The work plan has been revised to include all information cited from the *Kalamazoo River Area 1 SRI Phase 1 Data Report.*

USEPA General Comment # 3

Although the discussion of how sediment types were classified as fine versus coarse is much improved, there still remains a concern that this classification was developed from probing data and not core collection. The intent of the core collection is to obtain data from a majority of fine sediment cores. If upon collecting the cores, as described in the plan, it is determined that the majority of the cores do not contain fine sediment, additional core collection will be necessary. The discussion in this sampling plan makes the case that probing and visual field analysis are a reliable method to locate areas for the collection of fine grained sediment. (i.e. soft sediment equals fine sediment). The plan should be changed to reflect this uncertainty and potential need for additional core collection in the Sampling Strategy section.

Response:

Language has been added to the work plan text to reflect the uncertainties associated with fine and coarse classification of sediments based on probing data and subsequent targeting of sediments for core collection. The work plan now indicates that, upon visual inspection of cores, core locations may be relocated in the same area of the creek (between the two adjacent probing transects) in order to maintain the goal of 75 percent fine/25 percent coarse sediment cores for analysis.

USEPA General Comment # 4

Figures 3-17 through 3-21 referenced from the Technical Memorandum-Data Report should be incorporated directly as part of this sampling plan. The Data report was an informal submittal and not subject to U.S. EPA formal review, comment and approval. Therefore, reference to the Data report should not be included in this sampling plan or future sampling plans.

Response:
The work plan has been revised to include all information cited from the *Kalamazoo River Area 1 SRI Phase 1 Data Report.*

SPECIFIC COMMENTS

USEPA Specific Comment # 1

Last bullet, the reference to Table 3-24 should be Table 3-21 (of the Phase I data report).

Response:
The work plan has been revised to correctly reference the table.

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

RESPONSE TO MDEQ SEPTEMBER 12, 2008 COMMENTS ON THE AUGUST 2008 PROPOSED SAMPLING PLAN FOR PHASE 2 PORTAGE CREEK SEDIMENT INVESTIGATION

MDEQ is encouraged to generate productive comments in a more efficient manner. A total of 10 pages of comments from MDEQ (including interoffice communication materials) were submitted on a 10 page work plan (of which only 3 pages were text). The comments were highly redundant and not presented in a manner that facilitates easily addressing or responding to the comments. In all the various comments, MDEQ has not requested changes to the substance of the planned number of samples and sampling locations presented in the original work plan in May 2009. It would be helpful if MDEQ weighed the impact on schedules involved in generating and responding to comments so that comments on future work plans can be concise, well organized, numbered, and efficiently handled in both discussion, and in revisions to the documents.

COMMENTS

MDEQ Comment:

Paragraph 1, Page 1 indicates: "No specific adjustments to the plan itself in terms of the number and locations of samples were requested." This statement is misleading. Detailed comments were not provided in the July meeting because the agencies required additional explanation regarding the description of the probing activities, on which this work plan is based. As described in this letter, locations may need to be adjusted based on actual field conditions, and the number of samples is dependent upon our ability to achieve the objectives of the sampling plan.

Response:

The statement is factual. Even in this latest set of comments, no specific changes to planned sample locations have been requested. The number of samples is specified in the USEPA-approved *SRI/FS Work Plan: Morrow Dam to Plainwell Dam.*

Language has been added to the work plan text to reflect the uncertainties associated with fine and coarse classification of sediments based on probing data and subsequent targeting of sediments for core collection. The work plan now indicates that, upon visual inspection of cores, core locations may be relocated in the same area of the creek (between the two adjacent probing transects) in order to maintain the goal of 75 percent fine/25 percent coarse sediment cores for analysis.

MDEQ Comment:

The work plan makes reference to *Technical Memorandum – Kalamazoo River Area 1 SRI Phase 1 Data Report* (Phase 1 SRI Data Report) (ARCADIS 2008) in several locations. As this Memo was not formally reviewed and commented on by the agencies, it should not be referenced in this or a future work plan. Instead, it would be more beneficial to the reviewer to have all pertinent information that was used to support the elements proposed in the work plan to be incorporated into the work plan.

Response:

The work plan has been revised to include all information cited from the *Kalamazoo River Area 1 SRI Phase 1 Data Report.*

MDEQ Comment:

There is no specific objective identified in the work plan. The Multi-Area Field Sampling Plan (FSP) indicated that the objectives of the Phase 2 sampling are to "adequately represent the total area and volume of sediment...with a bias toward fine-grained sediment. Approximately 75 percent of the selected cores will be from fine sediments, with the remaining 25 percent from other sediments." In any case, the objectives of the sampling need to be identified in the work plan.

Response:

The work plan is intended to supplement the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam* and provide information on how the objectives presented therein will be met. The work plan fulfills this need by proposing a core collection scheme that adequately represents the total area of sediments by providing good spatial coverage, targets large sediment deposits in Portage Creek, and maintains the approximate 75 percent/25 percent split between fine and coarse cores (although the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam* does not specify the basis for fine and coarse designations). Additional language in the work plan, as discussed in the response to the first MDEQ Comment, provides for flexibility in core location in the field as needed to maintain the biased sampling approach.

MDEQ Comment:

The FSP indicated that the Phase 1 sampling will provide the following information: "Sediment deposits identified during probing activities will be characterized with respect to texture (fine versus coarse) as well as localized geomorphological characteristics of Portage Creek, including channel geometry, terraces, aggrading bars, and bank slopes. Each of the sediment classifications and geomorphological features will be mapped in relation to the nearest two transects."

This information has not been provided in the work plan and only a subset of this information has been provided in other ARCADIS submissions. In any case, the work plan has not explained how this information was pulled together to arrive at the proposed core locations. This makes review of the proposed work plan difficult and does not allow the MDEQ to provide specific comments related to proposed boring locations. Some of the field notes provided separately suggest that interesting areas may not have been selected for sampling, leading to uncertainty as to the protocol utilized by ARCADIS to select the proposed locations.

Response:

During Phase 1 SRI activities on Portage Creek, ARCADIS conducted sediment probing and mapping of deposits as outlined in the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam*. The geographical sediment distribution in Portage Creek was determined based upon a detailed continuous visual inspection in conjunction with probing. Between probing transects, sediment mapping was accomplished by wading along the creek and physically probing the creek bottom with a rod for depositional areas. Distinct deposits were probed further to determine their approximate depth and aerial extent. Physical information obtained during probing was recorded in field logs, and sediment deposits were characterized with respect to texture (fine vs. coarse), as well as localized geomorphological characteristics, including channel geometry, terraces, aggrading bars, and bank slopes. Each of the sediment classifications and geomorphological features was also mapped in relation to the nearest two transects. All of the above activities were performed, as outlined in and required by the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam*.

Data collected was subsequently presented, in full, in the *Area 1 Phase 1 SRI Data Report*, and has now been incorporated into the work plan. Table 1 presents all information from the sediment deposit mapping effort, including bounding transects, approximate dimensions, geomorphic feature classifications, material descriptions, and other relevant notes. Channel geometry information for probing transects along Portage Creek was included in Appendix D of the *Area 1 Phase 1 SRI Data Report*, which

is now included in Attachment 1 of the work plan. Figures 2 through 6 show both the sediment probing and sediment deposit locations, thereby "mapping" the sediment deposits as required by the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam.*

It is unclear at this point what information or data MDEQ believes has not yet been provided. Although the *Area 1 Phase 1 SRI Data Report* was an informal submittal to the agencies and did not require review or approval, all information used by ARCADIS to design the Phase 2 sampling plan was included in that report (submitted April 2008), and has now been incorporated into the work plan. The work plan itself clearly outlines the protocol used by ARCADIS to select the proposed sampling locations, which was based upon providing good overall spatial coverage of Portage Creek and also providing broad, relatively uniform coverage of both fine and coarse sediments in the Creek while maintaining a biased sampling strategy (75 percent/25 percent split) towards fine sediments. Additionally, it is unclear what "interesting areas" have not been selected for sampling; and further identification of an "interesting area" is highly subjective, not a goal of the work plan, and an inappropriate basis for sampling design.

MDEQ Comment:

The information currently provided to the MDEQ regarding the details of the probing activities on Portage Creek suggests that the core locations as described in the work plan will result in the vast majority of the core locations being ultimately classified as coarse. As such, the proposed field work should be flexible to adjust core collection in the field to achieve a more robust fines core sample set, or a second round of field activities may be necessary to collect a core set that approaches the desired coarse/fine split. Even though actual fine sediment may be somewhat difficult to locate in Portage Creek, there is no reason to believe that a concerted effort will not yield our shared objective of 75% fine sediment samples.

Response:

See response to the first MDEQ comment. MDEQ provides no support or evidence for the statement that the "vast majority of cores will be ultimately classified as coarse". MDEQ does not acknowledge that purposely searching out "difficult to locate" fine sediments could bias the program to such an un-useful extent if such locations represent small deposits with samples concentrated in a given area(s) to fulfill the approximately 75 percent goal such that results would not be of significance to risk management decisions. In the July 15, 2008 meeting in Chicago, MDEQ's own consultants advised against intentional biasing to a degree that adequate spatial coverage is lost. MDEQ also does not acknowledge that the work plan calls for *approximately* 75 percent fine. Further, in the July 15, 2008 meeting, MDEQ specifically directed ARCADIS not to try to satisfy the approximately 75 percent goal if insufficient fine sediments were present, specifically stating a concern that transitional sediments between fine and coarse may be labeled fine to satisfy this.

MDEQ Comment:

As discussed in the July meeting, probing is only a qualitative activity meant to guide our efforts in finding actual fine sediment in the field. The success of the probing can only be evaluated once cores have been collected, described in accordance with the USCS classification system, and a subset of samples sent to the lab for grain size analyses. Although the work plan recognizes the limitations of probing activities in some portions of the text, it does not identify that these limitations may lead to the need for additional coring to achieve our objectives. Due to the importance placed on the analyses of sediments classified as fine, grain size analyses should be conducted on a significant portion of the samples identified as fine to build confidence and a better understanding of the sediment texture classification procedures utilized in the field. The work plan explicitly states (on the first full paragraph of page 4/7) that grain size data will be available once the cores are analyzed but does not provide details regarding which cores are proposed for grain size analysis.

Response:

See response to the first MDEQ comment.

Probing does in fact return quantitative results. MDEQ has not explained the objectives referred to in the sentence ending "achieve our objectives". As stated on page 6 of the work plan, "all sediment cores will be collected....sectioned, and processed for analysis in accordance with the methods and protocols in the USEPA-approved Area 1 SRI/FS Work Plan and the *Multi-Area Field Sampling Plan*". These documents specify that all sediment cores collected from Portage Creek will be sectioned into the 0- to 2-inch depth interval, 2- to 6-inch depth interval, 6- to 12-inch depth interval, and subsequent 1-foot intervals to the bottom of the core, and that all samples will be submitted to the laboratory for PCB, TOC, and particle size distribution analysis. ARCADIS intends to follow this list of analyses for each sediment core, as is clearly indicated by the work plan language.

MDEQ Comment:

The first bullet on page 4/7 indicates that classification of sediments utilizing probing in the field was based on its "softness or stiffness." The work plan should, therefore, refer to these characteristics when referring to the probing activities, as opposed to the quantitative descriptors of "coarse and fine," which is currently causing confusion related to the interpretation of probing information. As described in the work plan, the actual designation of material as coarse or fine cannot be determined until after the cores are collected and described in accordance with USCS classification techniques.

Response:

Language referring to "coarse and fine" sediments has been consistently used on the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site for the duration of the project, and is included in the *SRI/FS Work Plan: Morrow Dam to Plainwell Dam*. Discontinuing the use of these descriptors as a method for biasing sampling locations would be inconsistent with the work plan guiding the investigative work, and language in the work plan (as noted by MDEQ above) clearly states how the "softness" of sediments is related to the fine or coarse designation applied to a probing location. However, in order to reduce apparent confusion related to these terms, ARCADIS has begun indicating on work products that utilize the "coarse and fine" designations what the basis for such designations is (i.e. probing, visual inspection of cores, or grain size analysis). The fine vs. coarse designation can in fact be reliably made for sediment that are clearly one or the other based on probing and visual field reconnaissance. The uncertainty regarding transitional sediments that are not clearly one or the other will be addressed through reclassification based on coring and grain size data as indicated in the work plan.

MDEQ Comment:

Core sectioning, description, and processing should be performed in a manner consistent with the techniques utilized during the Plainwell Dam No. 2 activities. This is not explicitly stated in the work plan, but the MDEQ wishes to build on the success of the Plainwell Dam No. 2 sampling and the consistency in oversight that was developed by the agencies during that core processing activity.

Response:

All sampling activities on the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site are governed by sampling and field procedures, sampling QA/QC procedures, and SOPs presented in the *Multi-Area Field Sampling Plan* (ARCADIS BBL 2007). These protocols are applied to all field work conducted on the Site, including the Plainwell No. 2 Dam Area Investigation, and will be applied to the Portage Creek activities as well. The intent to follow these methods and protocols is stated on page 7 of the work plan. Also on page 7, ARCADIS indicates that the initiation of Phase 2 activities in Portage Creek depends, in part, upon the "availability of USEPA oversight". As USEPA is the lead agency on this project, ARCADIS will work with USEPA to coordinate oversight schedule and activities.

MDEQ Comment:

The work plan indicates that Core Locations PCT47-1 and PCT49-2 have been selected for expanded analyses. The work plan indicates that these locations were chosen based on probing which suggested a high proportion of fine sediment in this area of the site. Field notes suggest that areas were identified during probing which exhibited a sheen or petroleum-type odors. Core locations that exhibit such characteristics in the field may be better suited for these analyses.

Response:

As indicated on page 6 of the work plan, "descriptions of all probing locations classified as fine-grained sediments suggests that the PCT47-1 and PCT49-2 locations are likely representative of fine-grained sediments in the creek corridor". These locations were targeted for TCL/TAL and SEM/AVS analysis because they are believed to be representative of sediments in Portage Creek, as opposed to selecting locations that do not appear to be representative samples. Locations which did not appear to be representative include the locations indicated in the field notes as having a sheen or odor, most of which are classified as "coarse" sediments based upon the probing data. Only one location noted to exhibit a sheen was classified as "fine", based upon probing data, and this location was located near the confluence of Portage Creek with the Kalamazoo River, an area likely influenced by River conditions and therefore not representative of fine-grained sediments in the creek corridor.